EXHIBIT D

1: Nucleic Acids Res. 1991 Apr 11;19(7):1571-6. Related Articles, Linl

Upstream sequences of rice proliferating cell nuclear antigen (PCNA) gene mediate expression of PCNA-GUS chimeric gene i meristems of transgenic tobacco plants.

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The transgenic tobacco plants have been generated that express the E. coli beta-glucuronidase (GUS) gene under control of the promoter from the rice proliferating cell nuclear antigen (PCNA, DNA polymerase auxiliary protein gene. GUS expression detected in situ by staining with the chromogenic substrate, 5-bromo-4-chloro-3-indolyl-beta-D-glucuronide (X-Gluc), was restricted to meristems in the organs of the transgenic tobacco plants. This expression responded to the phytohormones which promote callus formation. Furthermore, in situ thymidine uptake showed that the GUS expression pattern corresponded well to the active sites of DNA synthesis. Deletion analysis of the 5' upstream sequence confined the GUS expression pattern to fragment extending 263 bp upstream of the transcription start site of the rice PCNA gene. Thus, we have identified this fragment as a main regulatory element of the rice PCNA gene promoter.

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